

REMARKS/ARGUMENTS

Claims 1-3, 5-6, 8, 10-16, 18-26, 28-29, 32-36, 38-39, 41-48, and 51 have been resubmitted. Claims 1, 8, 10-11, 13, 18-19, 25, 34, 41-42, and 44 have been amended. Claims 4, 9, 17, 30-31, 37, 40, and 49-50 have been canceled. Claims 7, 27 and 28 were canceled in a previous paper.

The Examiner has objected to claims 25-26 and 29-33 because of an informality in claim 25.

The Examiner has rejected Claims 13-14, 25-26, and 34-37 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,702,232 (Moore). The Examiner has rejected Claims 13-14, 16, 25-26, and 34-37 under 35 U.S.C. §102(b) as being anticipated by European Patent No. 1,065,343. The Examiner has rejected Claims 1-5, 8, 44-46, 48-49, and 51 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,813,835 (Corsmeier) in view of U.S. Patent No. 4,236,870 (Hucul). The Examiner has rejected Claim 12 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,813,835 (Corsmeier) and U.S. Patent No. 4,236,870 (Hucul) in view of U.S. Patent No. 5,462,405 (Hoff). The Examiner has rejected Claims 15, 29, 33, 38, 44-45, and 46-48 under 35 U.S.C. §103(a) as being unpatentable over European Patent 1,065,343 in view of U.S. Patent No. 4,236,870 (Hucul). The Examiner has rejected Claims 20 and 43 under 35 U.S.C. §103(a) being unpatentable over European Patent 1,065,343 and U.S. Patent No. 4,236,870 (Hucul) in view of U.S. Patent No. 5,462,405 (Hoff). The Examiner has rejected Claims 25-26, 30, 32, 34-37, and 39 under 35 U.S.C. §103(a) being unpatentable over U.S. Patent 4,753,575 (Levengood) in view of European Patent 1,065,343.

Allowable Subject Matter

The Examiner has acknowledged that claims 9, 17, 31, 40 and 50 are directed to allowable subject matter.

Claims 21-24 are allowed.

35 U.S.C. §102(b)**U.S. Patent No. 5,702,232 (Moore)**

Claims 13-14, 25-26, and 34-37 have been rejected under 35 U.S.C. §102(b) as being anticipated by the '232 patent. The '232 patent discloses an air-cooled turbine blade having a plurality of cooling circuits for cooling the pressure side wall and the suction side wall. However, in contrast to the turbine blade of the present invention, the cooling circuits disclosed in the '232 patent do not have a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claims 13 and 34). These limitations were incorporated from claims 17 and 40 which were directed to allowable subject matter. Therefore, claims 13 and 34 are believed to be allowable. Claims 14-16, 18-20, 35-39, and 41-43 are believed to be allowable based on dependence on either claim 13 or 34.

Further, the '232 patent does not disclose, teach or suggest a method including the steps of "positioning one of said cooling circuits adjacent said leading edge; forming said leading edge adjacent said cooling circuit to have a plenum positioned for cooling said tip; and reusing cooling air after it cools said plenum" (claim 25). Independent Claim 25 has been amended to include the

limitations of claim 31, which was directed toward allowable subject matter. Claims 26-29 and 32-33 are believed to be allowable based on dependence on claim 25.

Applicants thus submit that the amended claims are not anticipated by the '232 patent and respectfully request withdrawal of the rejection.

European Patent 1,065,343.

Claims 13-14, 16, 25-26, and 34-37 have been rejected under 35 U.S.C. §102(b) as being anticipated by the '343 patent. The '343 patent discloses an air-cooled turbine blade having multiple cooling circuits, one being positioned on the pressure side wall and the other on the suction side wall. The cooling circuits disclosed in the '343 patent do not have a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claims 13 and 34). These limitations were incorporated from claims 17 and 40 which were directed to allowable subject matter. Therefore, claims 13 and 34 are believed to be allowable. Claims 14-16, 18-20, 35-39, and 41-43 are believed to be allowable based on dependence on either claim 13 or 34.

Further, the '343 patent does not disclose, teach or suggest a method including the steps of "positioning one of said cooling circuits adjacent said leading edge; forming said leading edge adjacent said cooling circuit to have a plenum positioned for cooling said tip; and reusing cooling air after it cools said plenum" (claim 25). Independent Claim 25 has been amended to include the limitations of claim 31, which was directed toward allowable subject matter. Claims 26-29 and 32-33 are believed to be allowable based on dependence on claim 25.

Applicants thus submit that the amended claims are not anticipated by the '343 patent and respectfully request withdrawal of the rejection.

35 U.S.C. §103(a)

U.S. Patent No. 5,813,835 (Corsi)

The '835 patent discloses an air-cooled turbine blade having a plurality of cooling circuits for cooling the pressure side wall and the suction side wall, each circuit having respective individual air inlets. However, in contrast to the turbine blade of the present invention, the '870 patent does not disclose, teach or suggest a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claim 1).

U.S. Patent No. 4,236,870 (Hucul)

The '870 patent discloses an air-cooled turbine blade using pin fins and a turning vane to enhance cooling within a turbine cooling circuit. However, in contrast to the turbine blade of the present invention, the '870 patent also does not disclose, teach or suggest a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claim 1).

Further, neither the '835 nor the '870 patent disclose, teach or suggest a method including the steps of "positioning one of said cooling circuits adjacent said leading edge; forming said leading edge adjacent said cooling circuit to

have a plenum positioned for cooling said tip; and reusing cooling air after it cools said plenum" (claim 44). Independent Claim 44 has been amended to include the limitations of claim 50, which was directed toward allowable subject matter. Claims 45-46, 48-49, and 51 are believed to be allowable based on dependence on claim 44.

Therefore, the '835 patent and the '870 patent cannot be combined to meet the present invention as claimed in claim 1, particularly as amended. These limitations were incorporated from claim 9 which was directed to allowable subject matter. Therefore, claims 1-5 and 8 are believed to be allowable. Claims 14-16, 18-20, 35-39, and 41-43 are believed to be allowable based on dependence on either claim 13 or 34.

U.S. Patent No. 5,462,405 (Hoff)

The '405 patent discloses a turbine blade having a cooling circuit comprising a supercharger bypassing a serpentine passage. However, in contrast to the turbine blade of the present invention, the '405 patent also does not disclose, teach or suggest a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claim 1).

As discussed above, the '835 patent and the '870 patent also fail to disclose, teach or suggest the limitations of claim 1. Claim 12 as amended is dependent on claim 1, which is believed to be allowable. By virtue of dependence on claim 1, claim 12 is also believed to be allowable.

The Examiner has rejected Claims 15, 29, 33, 38, 44-45, and 46-48 under 35 U.S.C. §103(a) as being unpatentable over European Patent 1,065,343 in view of U.S. Patent No. 4,236,870 (Hucul).

The '343 and '870 patents have been discussed previously and do not include a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claims 13 and 34). These limitations were incorporated from claims 17 and 40 which were directed to allowable subject matter. Therefore, claims 13 and 34 are believed to be allowable. Claims 15 and 38 are believed to be allowable based on dependence on claims 13 and 34 respectively.

As previously discussed, the neither the '343 patent nor the '870 patent disclose, teach or suggest a method including the steps of "positioning one of said cooling circuits adjacent said leading edge; forming said leading edge adjacent said cooling circuit to have a plenum positioned for cooling said tip; and reusing cooling air after it cools said plenum" (claims 25 and 44). Independent Claims 25 and 44 have been amended to include the limitations of claims 31 and 50, respectively, which were each directed toward allowable subject matter. Claims 29 and 33 are believed to be allowable based on dependence on claim 25. Claims 45-48 are believed to be allowable based on dependence on claim 44.

The Examiner has rejected Claims 20 and 43 under 35 U.S.C. §103(a) being unpatentable over European Patent 1,065,343 and U.S. Patent No. 4,236,870 (Hucul) in view of U.S. Patent No. 5,462,405 (Hoff).

The '343, '870 and '405 patents have all been discussed previously and do not include a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claims 13 and 34). These limitations were incorporated from claims 17 and 40 which were directed to allowable subject matter. Therefore, claims 13 and 34 are believed to be allowable. Claims 20 and 43 are believed to be allowable based on dependence on claims 13 and 34 respectively.

U.S. Patent 4,753,575 (Levengood)

The Examiner has rejected Claims 25-26, 30, 32, 34-37, and 39 under 35 U.S.C. §103(a) being unpatentable over U.S. Patent 4,753,575 (Levengood) in view of European Patent 1,065,343. The '575 patent discloses a method for improving cooling in turbine blades in which a plurality of cooling circuits are provided, each cooling circuit having a respective independent air inlet. However, the '575 patent does not disclose, teach or suggest a method including the steps of "positioning one of said cooling circuits adjacent said leading edge; forming said leading edge adjacent said cooling circuit to have a plenum positioned for cooling said tip; and reusing cooling air after it cools said plenum" (claim 25). As discussed previously, the '343 patent also fails to disclose, teach or suggest the limitations of claim 25. Therefore, combination of the references fails to meet the limitations of the method of claim 25. Further, independent Claim 25 has been amended to include the limitations of claim 31 which was directed toward allowable subject matter. Claims 26 and 32 are believed to be allowable based on dependence on claim 25. Claim 30 has been canceled.

The '575 also fails to disclose, teach or suggest a circuit "wherein said suction side wall cooling circuit closer to said trailing edge comprises a serpentine portion and a pin bank portion, said pin bank portion having a plurality of tear drop slots forming trailing edge air flow dividers for cooling said trailing edge" (claim 34). The '343 patent has been discussed previously as failing to disclose, teach or suggest the limitations of claim 34. The limitations of claim 34, as currently amended, were incorporated from claim 40 which was directed to allowable subject matter. Therefore, claim 34 is believed to be allowable. Claims 35-36, and 39 are believed to be allowable based on dependence on claim 34. Claim 37 has been canceled.

Claim 6

It is respectfully submitted that claim 6 was not addressed in the Office Action despite not being canceled previously. Claim 6 is currently dependent on claim 1, which is believed to be allowable. By virtue of dependence on claim 1, claim 6 is also believed to be allowable.

CONCLUSION

Reconsideration and withdrawal of the Office Action with respect to Claims 1-3, 5-6, 8, 10-16, 18-26, 28-29, 32-36, 38-39, 41-48, and 51 is requested.

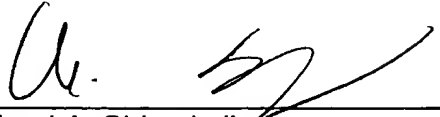
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In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

By: 
Michael A. Shimokaji
Attorney Registration No. 32, 303

Honeywell International Inc.
Law Dept. AB2
P.O. Box 2245
Morristown, NJ 07962-9806
(602) 365-2588
Attn: Robert Desmond

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